

**WHAT IS CLAIMED IS:**

- 1                   1.       A method of diagnosing chronic fatigue syndrome in a patient
- 2 exhibiting symptoms associated with chronic fatigue syndrome, comprising:
- 3                         evaluating the patient for serologic evidence of EBV and
- 4 HCMV, further comprising:
- 5                             obtaining serum from the patient;
- 6                             measuring the level of EBV IgM antibodies to the VCA
- 7 in the serum by measuring nonstructural epitopes for incomplete virus multiplication;
- 8                             measuring the level of EBV antibodies to the total EA
- 9 in the serum by measuring nonstructural epitopes for incomplete virus multiplication;
- 10                          measuring the level of HCMV IgM antibodies in the
- 11 serum by measuring nonstructural epitopes for incomplete virus multiplication;
- 12                          measuring the level of HCMV IgG antibodies in the
- 13 serum by measuring nonstructural epitopes for incomplete virus multiplication;
- 14                          monitoring the patient for T-wave abnormalities;
- 15                          classifying EBV as the cause of the chronic fatigue syndrome
- 16 when the measurements show any one of the following: 1) an elevated level of IgM
- 17 antibodies to the VCA for EBV; and 2) presence of total EA antibodies for EBV, in
- 18 combination with the absence of IgM antibodies for HCMV and a low level of IgG
- 19 antibodies for HCMV;
- 20                          classifying HCMV as the cause of the chronic fatigue
- 21 syndrome when the measurements show any one of the following: 1) an elevated
- 22 level of IgM antibodies for HCMV; and 2) an elevated level of IgG antibodies for
- 23 HCMV, in combination with a low level of IgM antibodies to the VCA for EBV,
- 24 and the absence of total EA antibodies for EBV; and
- 25                          classifying a combination of EBV and HCMV as the cause of
- 26 the chronic fatigue syndrome when the measurements show any one of the following:
- 27 1) an elevated level of IgM antibodies to the VCA for EBV; and 2) the presence of
- 28 total EA antibodies for EBV, in combination with any of the following: 1) an
- 29 elevated level of IgM antibodies for HCMV; and 2) an elevated level of IgG
- 30 antibodies for HCMV.

1                   2.     The method of claim 1, wherein the patient's T-waves are  
2 monitored through electrocardiographic monitoring.

1                   3.     The method of claim 1, wherein the patient's T-waves are  
2 monitored through Holter monitoring.

1                   4.     The method of claim 1, further comprising the step of  
2 conducting a stress multiple gaited acquisition test to check for the presence of an  
3 abnormal ventricular dynamics.

1                   5.     The method of claim 1, further comprising the step of  
2 conducting a myocardial perfusion test to check for coronary artery disease.

1                   6.     The method of claim 1, further comprising the step of  
2 conducting a cardiac catheterization to determine if a cardiomyopathy exists.

1                   7.     The method of claim 1, further comprising the step of  
2 conducting an endomyocardial biopsy to check for EBV or HCMV nucleic acids.

1                   8.     The method of claim 7, further comprising the step of  
2 conducting a polymerase chain reaction study of the biopsy for EBV and HCMV to  
3 determine the cause of the chronic fatigue syndrome.

1                   9.     The method of claim 7, further comprising the step of  
2 conducting in-situ hybridization analysis of the biopsy for EBV and HCMV to  
3 determine the cause of the chronic fatigue syndrome.

1                   10.    A method of diagnosing chronic fatigue syndrome in a patient  
2 exhibiting symptoms associated with chronic fatigue syndrome, comprising:  
3                   evaluating the patient for serologic evidence of EBV and  
4 HCMV, further comprising:  
5                   obtaining serum from the patient;

6 measuring the level of EBV IgM antibodies to the VCA  
7 in the serum by ELISA method;

8 measuring the level of EBV antibodies to the total EA  
9 in the serum by ELISA method;

10 measuring the level of HCMV IgM antibodies in the  
11 serum by measuring antigens p52 and CM<sub>2</sub> with the use of a light scattering  
12 technique;

13 measuring the level of HCMV IgG antibodies in the  
14 serum by measuring antigens p52 and CM<sub>2</sub> with the use of a light scattering  
15 technique;

16 monitoring the patient for T-wave abnormalities;

17 classifying EBV as the cause of the chronic fatigue syndrome  
18 when the measurements show any one of the following: 1) an elevated level of IgM  
19 antibodies to the VCA for EBV; and 2) presence of total EA antibodies for EBV, in  
20 combination with the absence of IgM antibodies for HCMV and a low level of IgG  
21 antibodies for HCMV;

22 classifying HCMV as the cause of the chronic fatigue  
23 syndrome when the measurements show any one of the following: 1) an elevated  
24 level of IgM antibodies for HCMV; and 2) an elevated level of IgG antibodies for  
25 HCMV, in combination with a low level of IgM antibodies to the VCA for EBV,  
26 and the absence of total EA antibodies for EBV; and

27 classifying a combination of EBV and HCMV as the cause of  
28 the chronic fatigue syndrome when the measurements show any one of the following:  
29 1) an elevated level of IgM antibodies to the VCA for EBV; and 2) the presence of  
30 total EA antibodies for EBV, in combination with any of the following: 1) an  
31 elevated level of IgM antibodies for HCMV; and 2) an elevated level of IgG  
32 antibodies for HCMV.

1 11. A method of diagnosing and alleviating the symptoms of  
2 chronic fatigue syndrome in a patient exhibiting symptoms associated with chronic  
3 fatigue syndrome, comprising:

4 evaluating the patient for serologic evidence of EBV and  
5 HCMV, further comprising:

6 obtaining serum from the patient;  
7 measuring the level of EBV IgM antibodies to the VCA  
8 in the serum;  
9 measuring the level of EBV antibodies to the total EA  
10 in the serum;  
11 measuring the level of HCMV IgM antibodies in the  
12 serum by measuring antigens p52 and CM<sub>2</sub> with the use of a light scattering  
13 technique;  
14 measuring the level of HCMV IgG antibodies in the  
15 serum by measuring antigens p52 and CM<sub>2</sub> with the use of a light scattering  
16 technique;  
17 monitoring the patient for T-wave abnormalities;  
18 classifying EBV as the cause of the chronic fatigue syndrome  
19 when the measurements show any one of the following: 1) an elevated level of IgM  
20 antibodies to the VCA for EBV; and 2) presence of total EA antibodies for EBV, in  
21 combination with the absence of IgM antibodies for HCMV and a low level of IgG  
22 antibodies for HCMV;  
23 classifying HCMV as the cause of the chronic fatigue  
24 syndrome when the measurements show any one of the following: 1) an elevated  
25 level of IgM antibodies for HCMV; and 2) an elevated level of IgG antibodies for  
26 HCMV, in combination with a low level of IgM antibodies to the VCA for EBV,  
27 and the absence of total EA antibodies for EBV;  
28 classifying a combination of EBV and HCMV as the cause of  
29 the chronic fatigue syndrome when the measurements show any one of the following:  
30 1) an elevated level of IgM antibodies to the VCA for EBV; and 2) the presence of  
31 total EA antibodies for EBV, in combination with any of the following: 1) an  
32 elevated level of IgM antibodies for HCMV; and 2) an elevated level of IgG  
33 antibodies for HCMV;  
34 administering to the patient a therapeutically effective amount  
35 of one or more pharmaceutically acceptable antiviral agents suitable for EBV,  
36 HCMV or a combination thereof, wherein the one or more antiviral agents are  
37 selected from the group consisting of acyclovir, ganciclovir, valacyclovir,

38 famciclovir, cidofovir, and pharmaceutically acceptable derivatives and mixtures  
39 thereof; and

40 conducting supplemental tests to check for recurrent chronic  
41 fatigue syndrome to determine an appropriate treatment period for the patient to  
42 achieve continued alleviation of the symptoms of chronic fatigue syndrome.

1 12. The method of claim 11, wherein the patient is administered  
2 0.1 to 20 grams of the one or more antiviral agents per day.

1 13. The method of claim 11, wherein the patient is administered  
2 0.3 to 15 grams of the one or more antiviral agents per day.

1 14. The method of claim 11, wherein the patient is administered  
2 0.5 to 10 grams of the one or more antiviral agents per day.

1 15. The method of claim 11, wherein the one or more antiviral  
2 agents are administered orally.

1 16. The method of claim 11, wherein said antiviral agent is  
2 valacyclovir hydrochloride.

1 17. The method of claim 16, wherein the patient is administered  
2 0.1 to 50 milligrams of valacyclovir hydrochloride per kilogram of body weight of  
3 the patient every six hours.

1 18. The method of claim 16, wherein the patient is administered  
2 1 to 40 milligrams of valacyclovir hydrochloride per kilogram of body weight of the  
3 patient every six hours.

1 19. The method of claim 16, wherein the patient is administered  
2 10 milligrams of valacyclovir hydrochloride per kilogram of body weight of the  
3 patient every six hours.

1                    20.    The method of claim 11, wherein said antiviral agent is  
2    ganciclovir.

1                    21.    The method of claim 20, wherein the patient is administered  
2    0.1 to 50 milligrams of ganciclovir per kilogram of body weight of the patient every  
3    twelve hours.

1                    22.    The method of claim 20, wherein the patient is administered  
2    0.3 to 40 milligrams of ganciclovir per kilogram of body weight of the patient every  
3    twelve hours.

1                    23.    The method of claim 20, wherein the patient is administered  
2    5 milligrams of ganciclovir per kilogram of body weight of the patient every twelve  
3    hours.